

Fig. 1. *Paramelita pinnicornis* sp. nov., holotype, male, 13,5 mm. A. Lateral aspect. B. Antenna 1. C. Antenna 2. D. Pereopod 3. E. Coxa 4 and pereopod 4. F. Pereopod 7. Scales = 1 mm.

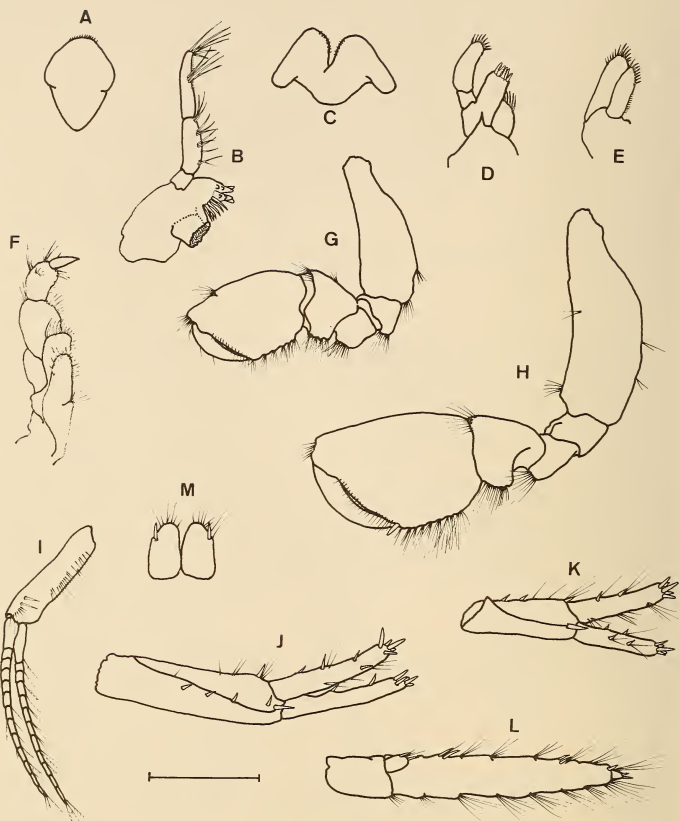


Fig. 2. *Paramelita pinnicornis* sp. nov., holotype, male, 13.5 mm. A. Upper lip. B. Left mandible. C. Lower lip. D. Maxilla 1. E. Maxilla 2. F. Maxilliped. G. Gnathopod 1. H. Gnathopod 2. I. Pleopod 3. J. Uropod 1. K. Uropod 2. L. Uropod 3. M. Telson. Scale = 1 mm.

Left mandible with incisor bluntly 4-toothed, lacinia mobilis with four blunt teeth, six spinose accessory blades, molar strongly tritulative, 3-articulate palp longer than body of mandible, article 1 as long as wide, article 2 3,5 times length of 1, with approximately 16 setae anteriorly, article 3 1,2 times length of 2, distal half lined with many short setae, six long apical setae present, tuft of four setae approximately 0,7 along length. Right mandible, incisor 3-toothed, lacinia mobilis bifurcate, three accessory blades. Maxilla 1, inner plate with five pectinate setae, inner margin pubescent, outer plate bearing two terminal rows each of about five stout serrated spines, palp exceeding outer plate, with eight apical spines. Maxilla 2, inner plate a little shorter and narrower than outer plate, proximally sparsely pubescent, both plates strongly setose terminally. Maxilliped, inner plate with many curved spinose setae, outer plate with approximately 10 stout, blunt spine-teeth on inner margin and 10 terminal curved spinose setae, palp article 2 the longest, 2 and 3 densely setose medially, 4 with four short setae on margin.

Pereon segments with very few dorsal setae, coxae 1-3 slightly deeper than corresponding segments, quadrate, sparsely setose ventrally, coxa 4 posteriorly excavate, slightly deeper than long, sparsely setose on ventral margin, coxae 5 and 6 longer than deep, bilobed, few setae ventrally, coxa 7 semicircular, smooth, segments 2-7 bearing one pair of coxal gills each, segment 2 with one, segments 3, 4, 5 and 7 with two, and segment 6 with four sausage-shaped sternal gills. Gnathopod 1 subchelate, articles 5 and 6 together slightly longer than 2, article 6 approximately twice as long as 5, longer than wide, palm relatively straight, oblique, palmar angle with two long and three short spines, dactyl as long as palm. Gnathopod 2 similar in structure to, but 1,4 times length and sturdier than 1, inner margin of article 2 bearing seven groups of strong spines, articles 5 and 6 combined longer than article 2, article 6 approximately twice as long as 5, slightly longer than wide, palm slightly convex, oblique, defined by four stout spines, dactyl as long as palm. Pereopod 3 1,4 times length of 4, articles 5 and 6 highly modified, 5 being posteriorly lobed, the lobe armed with five long and four shorter spines, article 6 folded back against lobed posterior margin of 5, bearing five short stout spines, dactyl stout, with eight short spinules. Pereopod 4 unmodified, article 5 with three posterior spines, article 6 with five pairs of posterior spines, dactyl with seven spinules. Pereopod 5 basis posteriorly expanded, article 4 0,8 length of 5, 5 and 6 subequal in length, article 5 with three pairs of spines, article 6 with five pairs of spines, dactyl with 10 spinules. Pereopods 6 and 7 similar in structure, bases expanded posteriorly, article 6 with six pairs of spines, dactyls each with 14 spinules anteriorly.

Pleon segments 1-3 sparsely setose dorsally, first pleonal epimeron rounded-quadrate, 2 and 3 quadrate, setose on posterior margin. Pleon segments 4-6 sparsely setose dorsally. Uropod 1 extending slightly beyond 2, 1,1 length of uropod 3, rami equal, 0,7 length of peduncle, each ending in five spines. Uropod 2 shorter, stouter than 1, rami subequal, each with five apical

spines. Uropod 3 exceeding 2 by 0,9 length of outer ramus, peduncle longer than broad, inner ramus reduced, 0,4 times length of peduncle, terminating in two spines and a few long setae, outer ramus three times length of peduncle, six groups of setae on inner and eight on outer margin, small second article ending in two spines. Telson as broad as long, deeply cleft, each lobe with one large subapical spine and several apical setae.

#### Remarks

*Paramelita pinnicornis* sp. nov. adult males are clearly distinguished from other *Paramelita* species by the fin-like projections on the peduncle of antenna 2 and the claw-like structure of the distal end of pereopod 3. Antenna 2 in females is slender and shorter than 1, and pereopod 3, like 4, is not modified. In most other respects, the females resemble the males. Although the fin-like projections of the second antenna in males are unique, a 'claw-like' pereopod 3 is also found in *P. auricularius* (Barnard, 1916), from Table Mountain, and in *P. andronyx* sp. nov. from Kasteelsberg. Despite their superficial similarity, however, these structures are not homologous, and therefore not evidence of close affinities between these three species. In *P. pinnicornis* sp. nov. the 'claw' is achieved by the folding back of article 6 against the lobed spiny posterior margin of article 5. In *P. andronyx* sp. nov., however, it is article 4 that is strongly protruded, with the right angle joint between articles 5 and 6 completing the claw. In *P. auricularius*, an elongated article 6 folds back against the lobed, swollen posterior margin of article 5, but this is of a quite different shape to the structure in *P. pinnicornis* sp. nov. Coxa 4 in the latter two species is either quadrangular, or gently concave posteriorly, whereas in *P. pinnicornis* sp. nov. it is distinctly excavate posteriorly.

#### *Paramelita magnicornis* sp. nov.

Figs 3-4

#### Material examined

*Holotype*. SAM-A40009, male, 15,0 mm, from a stream draining the Swartkop Mountains (34°14'S 18°29'E) near Millers Point on the southern Cape Peninsula. Collected by B. A. Stewart and C. L. Griffiths on 30 November 1989.

*Paratypes*. SAM-A40010, 13 males and eight females, from the same sample as the holotype.

*Other material*. SAM-A40013, numerous specimens, from the same stream as the holotype (date unrecorded). SAM-A40011, numerous specimens, collected 9 August 1989, and A40015, 3 specimens, collected 16 August 1990, a stream draining Chapman's Peak, Cape Peninsula. SAM-A40012, 10 specimens (date unrecorded), a stream draining the Kalk Bay Mountains near Clovelly, Cape Peninsula. SAM-A40014, 39 specimens, 30 November 1989, and A40016, 10 specimens (date unknown), Peck's Valley stream on Boyes Drive, Cape Peninsula.

### *Etymology*

From the Latin *magnus* (large), alluding to the swollen and elongated second antenna.

### *Description* (of holotype, male, 15,0 mm)

Body colour when alive off white. Head shorter than pereon segments 1 and 2 together, anteroventral margin excavate to accommodate inflated article 1 of antenna 2, eyes glistening white when alive, difficult to discern when preserved. Antenna 1 relatively short, 0,4 length of body, setation sparse, articles 1 and 2 subequal, each twice length of 3, flagellum 1,7 times length of peduncle, 30-articulate, accessory flagellum 6-articulate, reaching to end of article 4 of flagellum. Antenna 2 1,2 times length of 1 and considerably stouter, peduncle moderately setose posteriorly, article 4 1,9 length of article 3, distally inflated, article 5 slightly shorter than article 4, flagellum 0,8 times length of peduncle, 16-articulate, moderately setose posteriorly. Left mandible, incisor, bluntly 5-toothed, lacinia mobilis with 4 blunt teeth, four accessory blades, molar strongly triturative, palp longer than body of mandible, article 1 as long as wide, article 2 five times length of article 1, with 10 strong setae anteriorly, article 3 slightly shorter than 2, distal half with comb of short setae, six long apical setae, tuft of setae half-way along length. Right mandible, incisor 4-toothed, lacinia mobilis bifurcate, two accessory blades. Maxilla 1, inner plate with 7 setae, inner margin pubescent, outer plate terminating in nine stout serrated spines, palp exceeding outer plate, with eight stout apical setae. Maxilla 2, inner plate a little shorter and narrower than outer plate, proximally pubescent, both plates strongly setose terminally. Maxilliped, inner plate with many curved spinose setae, outer plate with approximately seven stout blunt spine-teeth on inner margin and eight terminal curved setae, palp article 2 the longest, inner margin with row of strong curved setae, article 3 densely setose.

Pereon segments dorsally smooth, coxae 1-3 deeper than corresponding segments, quadrate, moderately setose ventrally, coxa 4 excavate posteriorly, approximately as deep as long, moderately setose ventrally, coxa 5 and 6 longer than deep, bilobed, coxa 5 moderately setose ventrally, coxa 6 with a few short setae and spinules, coxa 7 semicircular, setose ventrally, segments 2-7 bearing one pair of coxal gills each, segments 2 with one, segments 3, 4, 5 and 7 with two, and segment 6 with four sausage-shaped sternal gills. Gnathopod 1 subchelate, article 2 bearing plumose setae on both anterior and posterior margins and two groups of spines on inner surface, articles 5 and 6 together longer than 2, article 6 1,7 times length of 5, longer than wide, palm gently convex, oblique, with five palmar spines, dactyl as long as palm. Gnathopod 2 similar to, but 1,2 length and sturdier than 1, article 2 with two groups of spines on inner margin and a few plumose setae on anterior margin, articles 5 and 6 together longer than article 2, article 6 1,7 times the length of 5, longer than wide, palm convex, distinctly oblique, defined by four stout spines, dactyl as long as palm. Pereopod 3 approximately the same length as 4, article 4 anteriorly lobed over 5 and

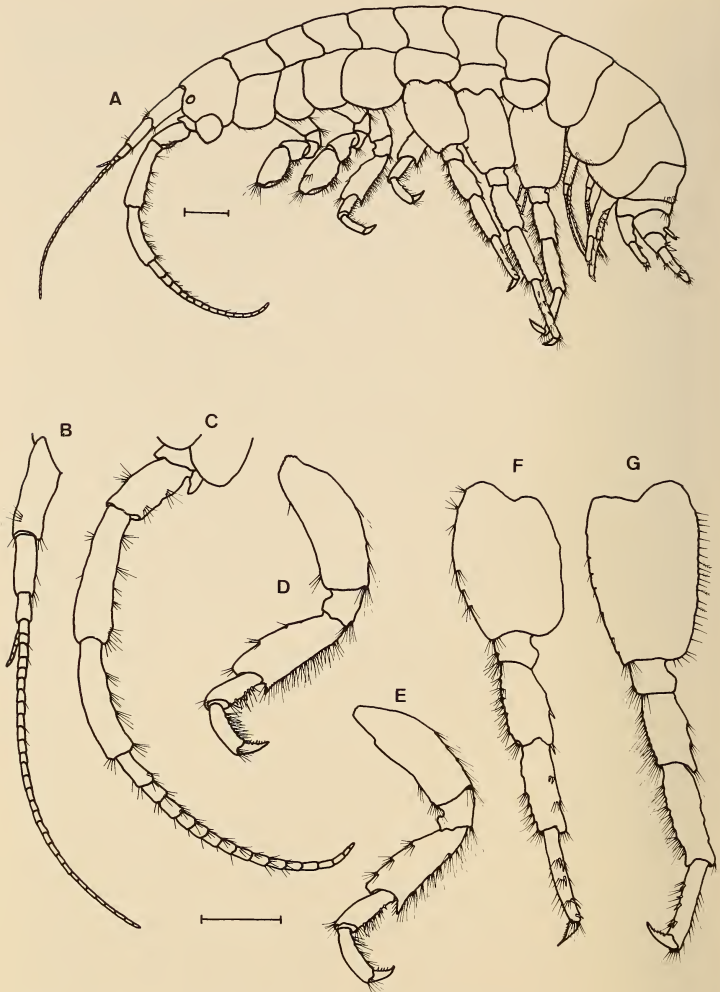


Fig. 3. *Paramelita magnicornis* sp. nov., holotype, male, 15.0 mm. A. Lateral aspect. B. Antenna 1. C. Antenna 2. D. Pereopod 3. E. Pereopod 4. F. Pereopod 5. G. Pereopod 7. Scales = 1 mm.

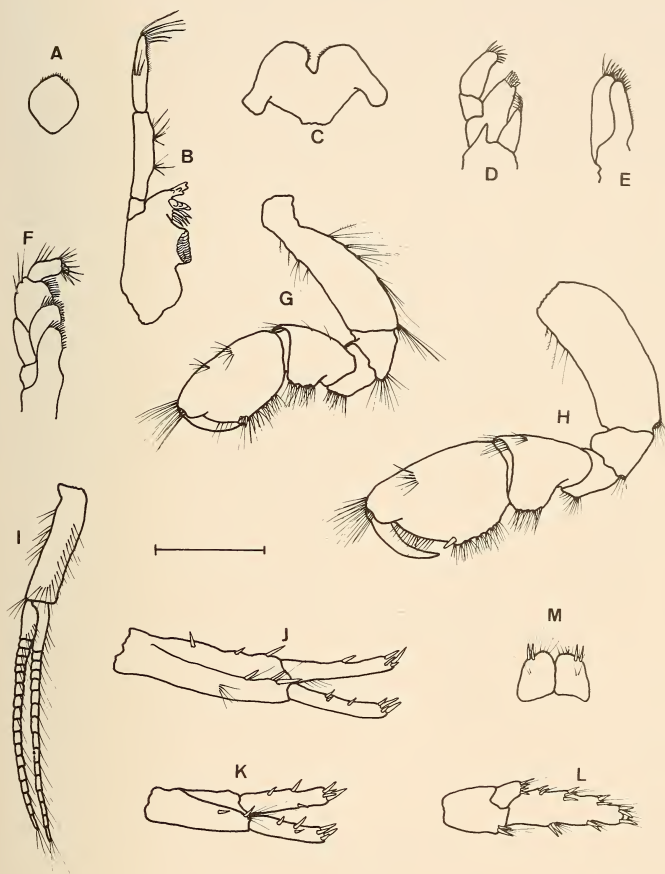


Fig. 4. *Paramelita magnicornis* sp. nov., holotype, male, 15.0 mm. A. Upper lip. B. Left mandible. C. Lower lip. D. Maxilla 1. E. Maxilla 2. F. Maxilliped. G. Gnathopod 1. H. Gnathopod 2. I. Pleopod 1. J. Uropod 1. K. Uropod 2. L. Uropod 3. M. Telson. Scale = 1 mm.

posterodistally protruded into a triangular tooth, articles 4, 5 and 6 densely setose posteriorly, dactyl with six spinules. Pereopod 4 similar in structure to 3, article 4 posterodistally protruded into a distinct triangular tooth, dactyl with four spinules. Pereopods 5, 6 and 7, bases moderately expanded posteriorly, with some simple and plumose setae anteriorly and posteriorly, article 4 shorter than 5 and 6, articles 5 and 6 approximately equal in length, article 5 with two groups, and 6 with four to five groups of spines posteriorly, articles 4, 5 and 6 moderately to densely setose anteriorly, dactyls of pereopods 5 and 7 with six spinules, and of pereopod 6 with seven spinules.

Pleon segments 1-3 with some dorsal setae, epimeral plates rounded to quadrate, ventrally setose. Pleon segments 4-6 moderately setose dorsally. Uropod 1 extending a little beyond uropod 2, 1,5 length of uropod 3, rami subequal, 0,6 times length of peduncle, each ending in four spines. Uropod 2 shorter than 1, inner ramus marginally longer than outer, each with four apical spines. Uropod 3 relatively short, exceeding 2 by 0,7 length of outer ramus, peduncle longer than broad, inner ramus short, 0,6 length of peduncle and 0,3 times length of outer ramus, with four apical spines and one seta, outer ramus 2,4 times length of peduncle, three groups of spines and setae on inner and two on outer margin, second segment reduced, only 5 per cent of length of first segment. Telson broader than long, deeply cleft, each lobe bearing two stout subapical spines, seven apical setae and two setae arising from the dorsal surface about half way along the length.

#### Remarks

*Paramelita magnicornis* sp. nov. is most similar to the common and widely distributed *P. capensis* (Barnard, 1916), with which it lives sympatrically in at least two known localities on the Cape Peninsula. Adult males of this newly described species are distinguished from *P. capensis* primarily by the swollen and elongate peduncle of antenna 2 and the 'spur-like' projections of the posterodistal apices of article 4 of the first and second pereopods. The thickening and elongation of articles 4 and 5 of antenna 2 are also characteristic, these articles being noticeably more swollen distally than proximally. In females, antenna 2 is relatively slender and shorter than 1; similarly, pereopods 3 and 4 are unmodified. Coxa 4 in *P. magnicornis* sp. nov., as in *P. capensis*, is distinctly excavate.

#### *Paramelita andronyx* sp. nov.

Figs 5-6

#### Material examined

*Holotype*. SAM-A40017, male, 16,1 mm, from a tributary of the Riebeek's River (33°22'S 18°50'E), above the farm Waterval, on the slopes of Kasteelsberg, in the Malmesbury district. Collected by B. A. Stewart and P. A. Cook in September 1989.



*Paratypes*. SAM-A40018, 10 males, three females, from the same locality as the type specimen.

*Other material*. SAM-A40019, 12 specimens, collected 24 September 1989, from a nearby farm, Wynkeldersberg. This is the only known other record of this species to date.

#### *Etymology*

From the Greek *aner* (man) and *onux* (claw), alluding to the claw-like structure of pereopod 3 in adult males.

#### *Description* (of holotype, male, 16,1 mm)

Body colour when alive whitish, tinged with pink. Head shorter than pereon segments 1 and 2 together, margin between eye lobe and post-antennal angle gently excavate to accommodate inflated article 1 of antenna 2, eyes glistening white when alive, invisible when preserved. Antenna 1 relatively long, 0,6 length of body, sparsely setose, flagellum 1,5 times length of peduncle, 29-articulate, accessory flagellum 3-articulate, reaching to article 3 of flagellum. Antenna 2 a little stouter and 0,8 times length of antenna 1, peduncle moderately setose, article 3 bearing a semicircular lobe posteriorly, article 4 three times length of 3, laterally swollen, article 5 0,8 times length of 4, flagellum 1,2 times length of peduncle, 17-articulate, moderately setose. Left mandible, incisor bluntly 5-toothed, lacinia mobilis with four blunt teeth, two bifurcate, one simple and one pectinate accessory blade, molar strongly tritritative, palp longer than body of mandible, article 1 longer than wide, article 2 2,6 times length of 1, with nine setae anteriorly, article 3 approximately the same length as 2, distal half lined with short setae, nine long apical setae present, two tufts of setae about half-way along length. Right mandible, incisor 4-toothed, lacinia mobilis bifurcate, four accessory blades. Maxilla 1, inner plate setose terminally, outer plate bearing eight serrate spines, palp exceeding outer plate, with six apical spines and three apical setae. Maxilla 2, inner plate shorter than outer, proximally pubescent, both plates strongly setose terminally. Maxilliped, inner plate with three spines and five curved setae, outer plate with eight stout spines on inner margin and seven terminal curved setae, palp article 3 as long as article 2, both articles strongly setose medially.

Pereon segments dorsally smooth, coxae 1-3 deeper than corresponding segments, quadrate, setose ventrally, coxa 4 only very slightly concave, deeper than long, setose on ventral margin, coxae 5 and 6 longer than deep, bilobed, bearing setae and a few spinules ventrally, coxa 7 semicircular, bearing short stout setae ventrally, segments 2-7 bearing one pair of coxal gills each, segment 2 with one, segments 3, 4, 5 and 7 with two, and segment 6 with four sausage-shaped sternal gills. Gnathopod 1 subchelate, articles 5 and 6 together longer than article 2, inner posterior margin of article 2 with five stout spines, article 6 1,4 times length of article 5, longer than wide, palm slightly convex, gently oblique, with four palmar spines, dactyl as long as palm. Gnathopod 2 similar

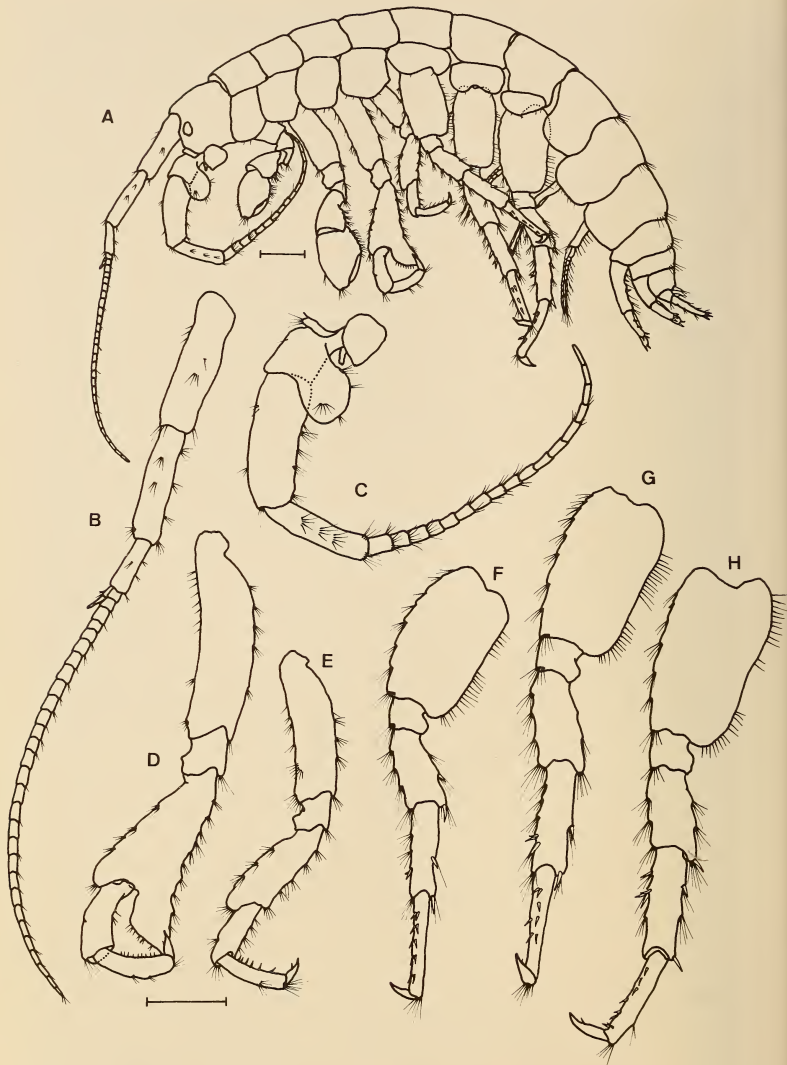


Fig. 5. *Paramelita andronyx* sp. nov., holotype, male, 16.1 mm. A. Lateral aspect. B. Antenna 1. C. Antenna 2. D. Pereopod 3. E. Pereopod 4. F. Pereopod 5. G. Pereopod 6. H. Pereopod 7. Scales = 1 mm.

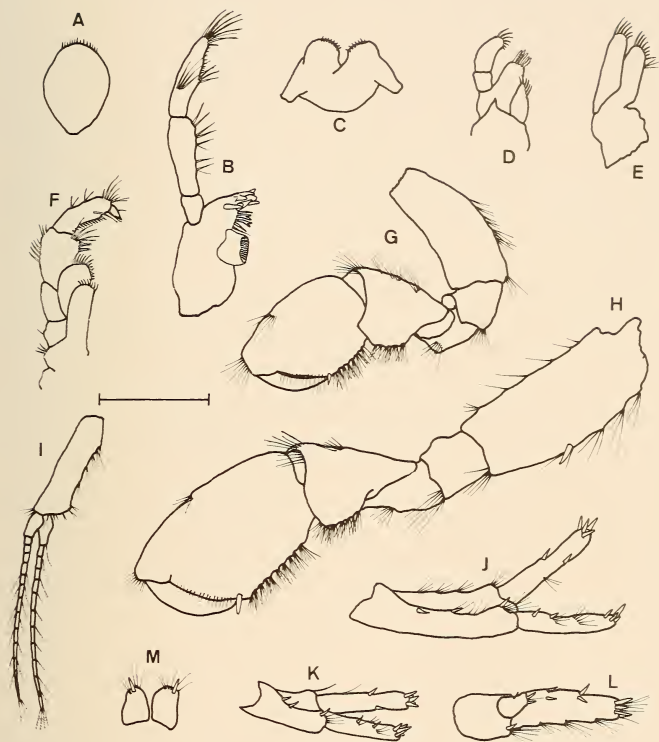


Fig. 6. *Paramelita andronyx* sp. nov., holotype, male, 16.1 mm. A. Upper lip. B. Left mandible. C. Lower lip. D. Maxilla 1. E. Maxilla 2. F. Maxilliped. G. Gnathopod 1. H. Gnathopod 2. I. Pleopod 3. J. Uropod 1. K. Uropod 2. L. Uropod 3. M. Telson. Scale = 1 mm.

to, but larger than, 1, articles 5 and 6 together longer than article 2, inner posterior margin of article 2 bearing five pairs of stout spines, article 6 1,6 times the length of 5, longer than wide, palm convex, slightly oblique, defined by four stout spines, dactyl as long as palm. Pereopod 3 highly modified and 1,3 times length of 4, inner posterior margin of article 2 bearing five pairs of stout spines, articles 4, 5 and 6 modified to form a claw-like structure, article 4 posterodistally strongly projected, moderately setose, article 5 short and stout, bearing short spine-like setae posteriorly, article 6 bent at right angles to article 5, bearing a few short stout setae posteriorly, forming a claw with projection of article 4, dactyl with a single spinule. Pereopod 4 unmodified, articles 4, 5 and 6 moderately setose and bearing some spines, dactyl with a single spinule. Pereopods 5, 6 and 7, bases slightly expanded posteriorly, bearing spinules and setae anteriorly and setae posteriorly, articles 4 and 5 moderately setose and bearing some groups of spines, article 6 with five or six clusters of spines anteriorly, dactyls always with only a single spinule.

Pleon segments with a few setae along posterodorsal margins, first epimeral plate rounded-quadrate, 2 and 3 quadrate, setose ventrally. Pleon segments 4-6 more heavily setose dorsally. Uropod 1 extending to tip of uropod 2, 1,5 length of uropod 3, rami subequal, 0,8 times length of peduncle, both rami with some setae and spines along lateral margins, each ramus terminating in four spines. Uropod 2 shorter than 1, inner ramus slightly longer than outer, 1,2 times length of peduncle, both rami with setae and spines laterally, each ending in five terminal spines. Uropod 3 relatively short, exceeding uropod 2 by 0,6 length of outer ramus, peduncle longer than broad, inner ramus short, 0,6 length of peduncle and 0,3 length of outer ramus, terminating in two spines and a single seta, outer ramus approximately twice the length of peduncle, two groups of spines and setae on inner and three on outer margin, second article absent. Telson broader than long, deeply cleft, each lobe with one large subapical spine and four to five apical setae.

### Remarks

In addition to their uniquely subchelate first pereopods, *P. andronyx* sp. nov. males from Kasteelsberg are easily identified by the large semicircular lobe on the posterior margin of article 3 of antenna 2. In adult females, antenna 2 is more slender and shorter than 1, article 3 is not lobed, and an unmodified pereopod 3 resembles pereopod 4 in structure. In other respects, females are similar to males. *Paramelita andronyx* sp. nov. males share a lobed article 3 (along with a distinctly swollen article 4) of antenna 2, with both *P. flexa* Griffiths, 1981, and *P. auricularius*, which also possesses a modified pereopod 3. The claw on pereopod 3 in *P. auricularius* is, however, formed from articles 5 and 6 only, not article 4. *Paramelita flexa* is clearly distinguished from *P. andronyx* sp. nov. both by the shape of antenna 2 and by its unmodified pereopod 3. In addition to the swelling of article 4 of the second antenna, other

features, such as the possession of only a single spinule on each dactyl, the poorly excavate coxa 4, and the loss of a second segment on the outer ramus of the third uropod, suggest that *P. andronyx* sp. nov. might have affinities with *P. crassicornis* (Barnard, 1916), and *P. tulbaghensis* (Barnard, 1927).

*Paramelita platypus* sp. nov.

Figs 7-8

*Material examined*

*Holotype*. SAM-A40020, male, 12,8 mm, from Fisherman's Kloof, a tributary of the Fernkloof River flowing through the Fernkloof Nature Reserve (34°24'S 19°14'E) near Hermanus, Cape Province. Collected in September 1989 by B. A. Stewart and P. A. Cook.

*Paratypes*. SAM-A40021, 8 males, 12 females, also from Fisherman's Kloof.

*Other material*. SAM-A40022, numerous specimens, collected 22 July 1990, from a stream near Stanford, Cape Province.

*Etymology*

From the Greek *platus* (broad) and *pous* (foot), alluding to the widened article 4 of pereopods 3 and 4.

*Description* (of holotype, male, 12,8 mm)

Body colour when alive orange to pink, eyes white when alive, invisible when preserved. Head considerably shorter than pereon segments 1 and 2 together, ventral margin excavate to accommodate inflated article 1 of antenna 2. Antenna 1 relatively long, 0,7 times length of body, setation sparse, flagellum 2,2 length of peduncle, 41-articulate, accessory flagellum 5-articulate, reaching to article 5 of primary flagellum. Antenna 2 approximately the same length as, but considerably stouter than, antenna 1, peduncle elongate, moderately setose, article 4 three times length of unmodified article 3, articles 4 and 5 equally long and relatively slender, lacking projections, flagellum 1,1 times length of enlarged peduncle, 22-articulate, sparsely setose. Left mandible, incisor with two blunt teeth, lacinia mobilis with four blunt teeth, three simple, and one bifurcate accessory blade, molar strongly tritulative, palp longer than body of mandible, article 1 as long as wide, article 2 six times length of article 1, with approximately four groups of setae and one spine on anterior margin, article 3 1,3 times length of 2, distally lined with short setae and bearing six long apical setae, tuft of about four setae half way along length. Right mandible, incisor 3-toothed, lacinia mobilis bifurcate, three flattened spinose accessory blades. Maxilla 1, inner plate terminally setose, inner margin pubescent, outer plate terminating in about nine stout serrated spines, palp exceeding outer plate, with

eight stout apical setae. Maxilla 2, inner plate shorter and narrower than outer plate, proximally pubescent, both plates strongly setose terminally. Maxilliped, inner plate with many curved spinose setae, outer plate with about nine stout spine-teeth on inner margin and six terminal spinose setae, palp article 2 the longest, articles 2 and 3 densely setose medially.

Pereon segments with a few setae dorsally, coxae 1-3 slightly deeper than corresponding segments, quadrate, setose ventrally, coxa 4 virtually quadrate, only very slightly concave posteriorly, height and length subequal, setose ventrally, coxa 5 and 6 longer than deep, bilobed, setose ventrally, coxa 7 semicircular, setose ventrally, segments 2-7 bearing one pair of coxal gills each, segments 4, 5 and 7 with two, and segment 6 with four sternal gills. Gnathopod 1 subchelate, articles 5 and 6 together longer than 2, article 6 1,6 times length of 5, longer than wide, palm slightly convex, palmar angle with two long and three short spines, dactyl as long as palm. Gnathopod 2 similar in structure but larger than 1, articles 5 and 6 combined a little longer than 2, two pairs of short spines on inside of article 2, article 6 1,7 times length of 5, longer than wide, palm strongly convex, transverse, defining angle rectangular, bearing four strong spines, dactyl as long as palm. Pereopod 3 enlarged, 1,2 times length of 4, article 2 with seven spinules on anterior, and eight spinules on posterior margin, article 4 greatly expanded laterally and lobed posteriorly, three spinules on anterior margin, articles 4, 5 and 6 densely setose posteriorly, dactyl with five spinules. Pereopod 4 article 2 with nine anterior and five posterior marginal spinules, article 4 laterally expanded, although not quite as pronounced as in pereopod 3, with two small spinules on anterior margin, articles 4, 5 and 6 again densely setose posteriorly, dactyl bearing five spinules. Pereopods 5, 6 and 7, article 2 moderately expanded posteriorly, with spinules and some setae anteriorly, setose posteriorly, article 4 shorter than 5 and 6, bearing three groups of spines posteriorly, articles 5 and 6 subequal in length, article 5 with three groups of spines and article 6 with five groups of spines posteriorly, both 4 and 5 densely setose anteriorly, 6 moderately setose, dactyl of pereopod 5 with seven spinules, those of pereopods 6 and 7 with 10 spinules each.

Pleon segments 1-3 sparsely setose dorsally, epimeral plates rounded-quadrate, ventrally setose. Pleon segments 4-6 moderately setose dorsally. Uropod 1 extending slightly beyond 2, 0,9 length of uropod 3, rami subequal, 0,8 times length of peduncle, each ending in four spines. Uropod 2 shorter than 1, inner ramus slightly longer than outer, each with one dorsal and four apical spines. Uropod 3 elongate, exceeding uropod 2 by 0,9 length of outer ramus, peduncle longer than broad, inner ramus short, 0,6 length of peduncle and only 0,2 length of outer ramus, with 3 apical spines, outer ramus about four times length of peduncle, six groups of spines and setae on each margin, second segment very reduced and only 4 per cent of length of first segment. Telson broader than long, deeply cleft, each lobe bearing one stout subapical spine, four apical setae, two subapical setae, and two small plumose setae about one third the way along the outer margin.

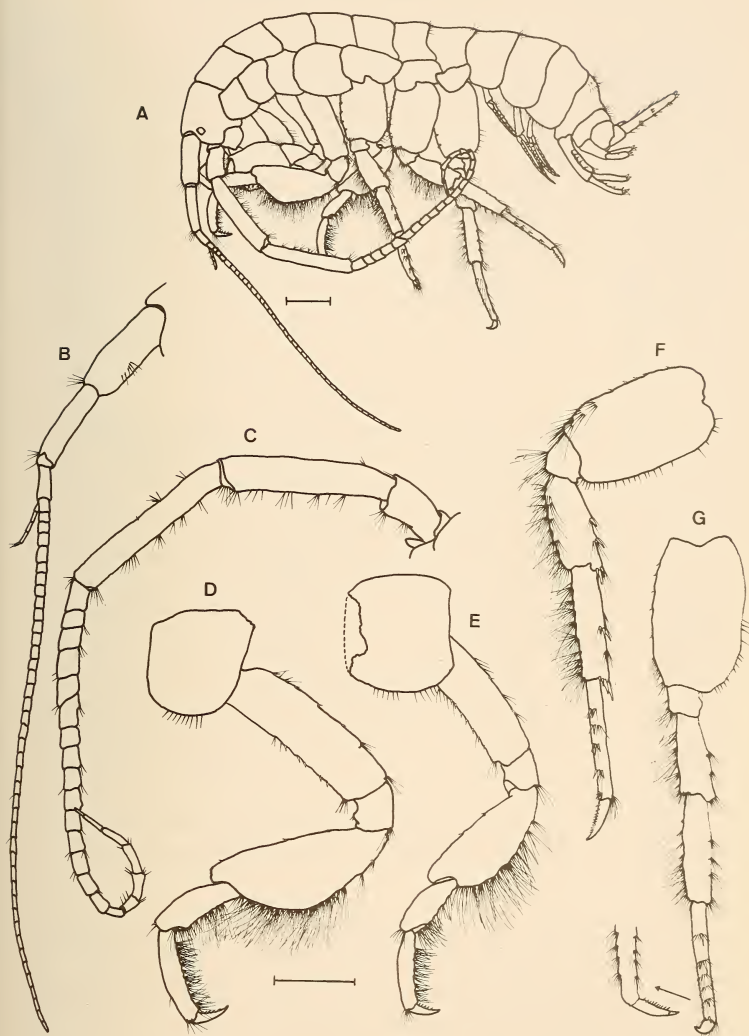


Fig. 7. *Paramelita platypus* sp. nov., holotype, male, 12,8 mm. A. Lateral aspect. B. Antenna 1. C. Antenna 2. D. Coxa 3 and pereopod 3. E. Coxa 4 and pereopod 4. F. Pereopod 6. G. Pereopod 7. Scales = 1 mm.

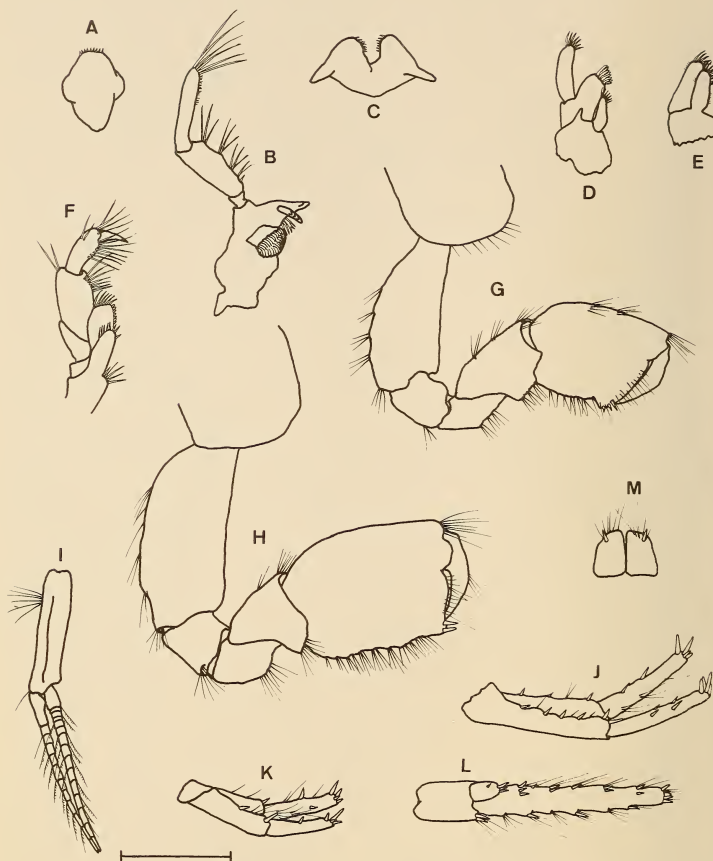


Fig. 8. *Paramelita platypus* sp. nov., holotype, male, 12.8 mm. A. Upper lip. B. Left mandible. C. Lower lip. D. Maxilla 1. E. Maxilla 2. F. Maxilliped. G. Gnathopod 1. H. Gnathopod 2. I. Pleopod 2. J. Uropod 1. K. Uropod 2. L. Uropod 3. M. Telson. Scale = 1 mm.



### Remarks

*Paramelita platypus* sp. nov. males are unusual in two respects—the possession of extremely elongate and sturdy second antennae, and the wide, flattened articles 4 of pereopod 3, and to a lesser extent, pereopod 4. In females, antenna 2 is slender and shorter than antenna 1, articles 4 of pereopods 3 and 4 are not flattened, and the antennae and pereopods are only moderately setose. In other respects, the females resemble the males. In addition, all of the pereopods are markedly setose. Although several *Paramelita* species have elongated second antennae, none of the known species have males with the first two pereopods modified as in *P. platypus* sp. nov. Coxa 4 in this species is only very slightly concave posteriorly, a condition found in several of the other *Paramelita* species, such as *P. aurantius* (Barnard, 1927), *P. granulicornis* (Barnard, 1927), *P. crassicornis*, *P. auricularius* and *P. andronyx* sp. nov.

### DISCUSSION

In his account of the ten *Paramelita* species known at that time, Barnard (1927) commented on three 'evolutionary tendencies' in the genus: the thickening of the second antennae, modifications of pereopod 3, and variations in the shape of coxa 4. All four species described here show unusual modifications of these features. Of the 12 previously known and the additional four species described here, at least 11 show some degree of enlargement, or 'pediformity', of the second antennae. This development is most marked in large adult males. The *Paramelita* species share this phenomenon with the Australian paramelitid genus *Uroctena* (Williams & Barnard 1988). A 'claw-like' pereopod 3, found in three of the *Paramelita* species, has not been recorded in other paramelitids. This modification appears to have evolved more than once, and is probably a clasping organ used in reproduction. The shape of coxa 4 in *Paramelita* species varies from being strongly excavate posteriorly, such as in *P. capensis*, to being quadrate, as in the case in *P. granulicornis*. Although this coxal plate is deeply excavate in the most primitive Australian genus *Austrogammarus*, it is only 'weakly' emarginate in *Uroctena* (Williams & Barnard 1988). The evolutionary trends within the *Paramelita* species, as well as the relationship of this genus with the Australian paramelitid genera will be the subject of a later study.

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## REFERENCES

- BARNARD, K. H. 1916. Contributions to the crustacean fauna of South Africa. 5. The Amphipoda. *Annals of the South African Museum* 15 (3): 105-302.
- BARNARD, K. H. 1927. A study of the freshwater isopodan and amphipodan Crustacea of South Africa. *Transactions of the Royal Society of South Africa* 14 (2): 139-215.
- GRIFFITHS, C. L. 1981. The freshwater Amphipoda (Crustacea) of South and South West Africa. *Annals of the South African Museum* 83 (5): 79-97.
- SHELLENBERG, A. 1937. Kritische Bemerkungen zur Systematik der Süßwassergammariden. *Zoologische Jahrbucher. Abteilung für Systematik, Geographie und Biologie der Thiere* 69: 469-516.
- THURSTON, M. H. 1973. A new species of *Paramelita* (Crustacea: Amphipoda) from South Africa. *Annals of the South African Museum* 62 (5): 159-168.
- WILLIAMS, W. D. & BARNARD, J. L. 1988. The taxonomy of crangonyctoid Amphipoda (Crustacea) from Australian fresh waters: foundation studies. *Records of the Australian Museum. Supplement* 10: 1-180.



